

THE NAUTILUS

Vol. 66

APRIL, 1953

No. 4

A NEW SPECIES OF PLEUROBRANCHUS FROM THE CARIBBEAN (TECTIBRANCHIATA)¹

By N. T. MATTOX

Department of Zoology and Allan Hancock Foundation,
University of Southern California

During the period from March, 1950 through April, 1952 various invertebrates were collected on a small coral island off shore from Parguera, Puerto Rico. In four of these collections, an interesting tectibranch was encountered, in all, about 30 specimens. Upon study, this form proved to be an undescribed species of the genus *Pleurobranchus*.

As pointed out by Abbott (1949) a great deal of confusion exists in the classification of the subfamily Pleurobranchinae, especially those forms which have been associated with the genus *Pleurobranchus* Cuvier, 1805. In this regard the writer agrees with Thiele (1931) on the separation of the subgenera. The subgenus *Pleurobranchus* s.s. Cuvier, 1805, is made up of those forms with an anteriorly located shell, and with female orifice and penis not separated; the subgenus *Oscanius* (Leach) Gray, 1847, has forms with a posteriorly located shell, and with the female orifice separated from penis by fleshy lip or space. *Susania* Gray, 1857 stands as a synonym of *Oscanius*.

The subgenus *Pleurobranchopsis* Verrill, 1900 is comprised of those with a rudimentary or poorly developed shell. The species here described is considered a member of the subgenus *Oscanius*.

¹ Contribution from the Allan Hancock Foundation No. 109.

Pleurobranchus (Oscanius) amarillius new species.

Body.—The living animal is elongately rounded and dorsally convex, the holotype measuring 37.5 mm. in length and 25.5 mm. in width (fig. 1). The mantle is larger than the foot, in a slightly contracted, preserved specimen with the mantle 36 by 23 mm. The foot measures 24 by 15 mm. The anterior edge of the mantle has a very shallow, indistinct median sinus. The dorsum appears to be smooth, but is covered with microscopic (approximately 0.1 mm.) papillae which may be retracted into tiny dorsal perforations. The color of the living animal, young and adults, is a uniform bright yellowish orange. The entire body is very soft and semi-translucent, suggesting a mass of "orange gelatin"; it is more translucent toward the edge of the dorsum. Clusters of small, crystalline spicules are embedded throughout the dorsum. These spicules are variable in size from 0.3 mm. to 0.1 mm. in length by 0.07 to 0.01 mm. in width. As indicated in fig. 4, the form and arrangement of these spicules are variable.

Head.—The velum extends anteriorly beyond the foot, is rounded anteriorly and roughly trapezoid in outline. The lateral edges of the velum are grooved (fig. 2). The color of the veil and head is the same yellow-orange as that of the body. During locomotion, the veil may be extended completely beyond the anterior margin of the dorsum. The mouth is located at the median, ventral junction of the veil and body. The two rhinophores arise slightly dorsal to and anterior to the deeply set, black eyes. The rhinophores are elongated, cylindro-conic structures, each being a loosely rolled plate, the margins external, the lower overlapping the upper. In life, the rhinophores are very contractile.

Ctenidium.—The branchial plume lies on the right side in the space between the foot and the mantle; in life the gill may be completely covered by the mantle or extended posteriorly and laterally. The plume may be extended beyond the posterior edge of the mantle or contracted to less than one-half the body length. The posterior third of the plume is free from the body, being supported by a membrane. Arising from the primary rachis is an average of 20 pairs of secondary pinnules. Each pinnule

arises from a swollen area on the rachis. Each pinnule is plumose in form. Twenty-two is the maximum number of pinnules observed. At the base of the membrane supporting the posterior third of the ctenidium is located the anal opening. Directly anterior to the base of the plume and dorsal to the genital eminence is found the external opening of the excretory organ.

Shell.—The shell (fig. 3) is small, calcareous, auriculiform, and semi-quadrate in outline. It is approximately one-seventh the total length of the animal; in an alcohol specimen 33 mm. in length the shell was 5 mm. long by 2.9 mm. wide. It is thin, flat, only slightly convex in last whorl. The spire is short, but conspicuous, with about $2\frac{1}{2}$ whorls. The color in life is white with a yellowish tint. The shell is embedded in the dorsum approximately one-fifth the length from the posterior edge. It lies slightly to the left of the mid-dorsal line.

Mandibles.—The mandibles are elongate, flat, squared posteriorly, and rounded on the more narrow anterior edge, the dimensions are approximately 2.6 mm. by 1.3 mm. Each mandible is composed of a closely set series of platelets. There are approximately 115 rows of these platelets with approximately 85 in each row in the wide part of the mandible. Each platelet is approximately 0.9 mm. in length by 0.19 mm. in width at the extended articulation points (fig. 7). Each platelet possesses a prominent, median denticle with from 1 to 3 lateral, smaller denticles on each side.

Radula.—The radula is located in an extensible proboscis, extendable to about one-fourth the body length. In an alcohol specimen 20 mm. in body length, the radular plate was 5 mm. in length by 7 mm. in greatest width. The outline of the flattened radular plate is pyramoidal, the teeth are very closely set anteriorly and more widely spread posteriorly. The radula is composed of from 180 to 190 rows of teeth with about 400 teeth in each row; the formula is 200-0-200. The teeth are long, slender, and slightly arcuate with an uncinat apex. Below the apical tooth there are from 2 to 10 smaller denticles. Figures 5, 6, 8, and 9 indicate the variations in this dentition. The teeth of the anterior rows average 0.25 mm. in length, the lateral teeth being slightly wider than the median teeth (figs. 8, 9). The

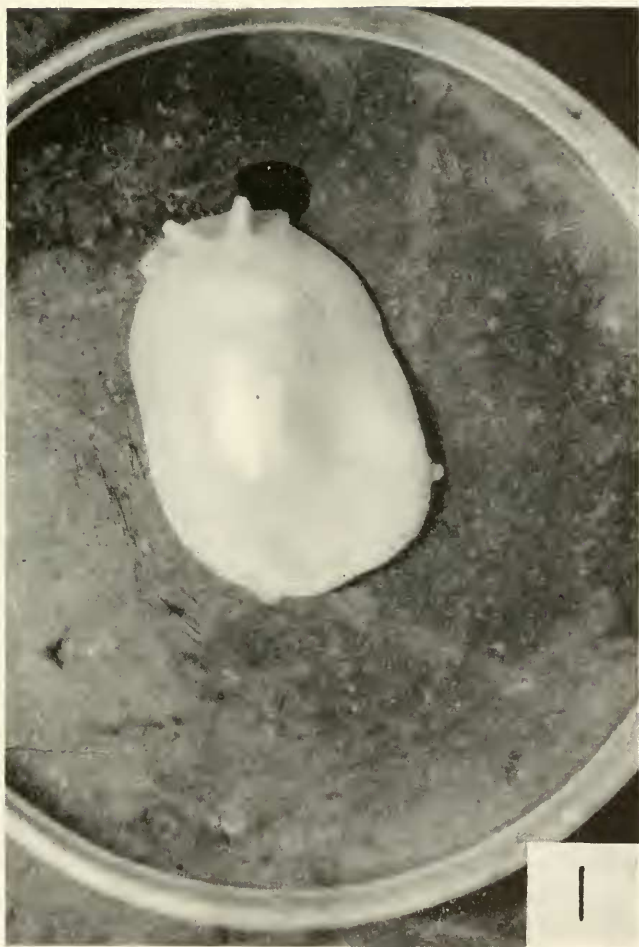
median posterior teeth average about 0.10 mm. in length, and the more elongate lateral teeth average 0.30 mm. in length.

Genitalia.—The external genitalia are located on a papilla, 5 mm. in width, on the right side of the body anterior and ventral to the ctenidium. The female openings are located in a depression posterior to the conical penis; the vagina is anterior to the oviduct-nidamental opening (fig. 10). The internal genital mass is very conspicuous. The hermaphroditic duct leads directly from the posteriorly located hermaphroditic gland over the surface of the large nidamental gland to a foliate, oblong, 2 mm. long prostate gland. From the prostate gland the vas deferens extends to the base of the penis with a few undulations. At approximately two-thirds the length of the vas deferens, a 3 mm. long diverticulum arises. This structure seems to be a seminal vesicle, "poche annexe du canal deferent" of Vayssière. From the point of connection with the prostate gland, the hermaphroditic duct proceeds ventrally as the oviduct to open in close junction with the nidamental aperture. The nidamental-albumen gland complex is a very large, lobate structure; in an alcohol specimen 40 mm. in length, this complex was 13.0 mm. in length. Anterior and slightly ventral to the oviducal opening is the vaginal opening. The vagina is approximately 0.25 mm. in length and opens dorsally into an ovate spermatheca of about 0.17 mm. in length. From approximately the middle of the vagina, there arises a posteriorly extended tube which terminates in a spermatocyst, "poche copulatrice annexe" of Vayssière. The vaginal and oviduct-nidamental openings enter a common crescent-shaped depression on the posterior half of the genital papilla.

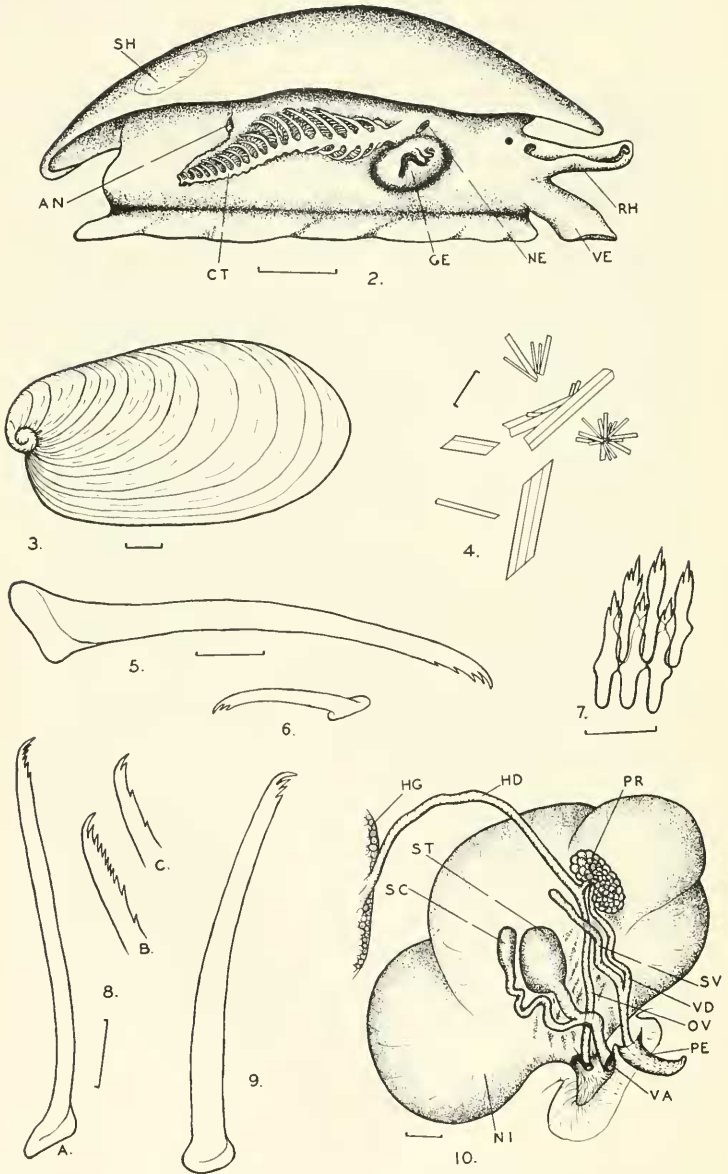
Type locality.—Isla de la Gata, Parguera, Puerto Rico, April 16, 1952.

Types.—Holotype U.S.N.M. No. 574844; 2 paratypes and shell U.S.N.M. No. 574845; 12 paratypes and paratype shell in the Allan Hancock Foundation collections.

Remarks.—This species has been found by the writer and collector, only in the type locality. This small, 1-acre, coral-formed island lies about 1 mile off shore. The *Pleurobranchus* was found under coral rocks and fragments of dead *Acropora* which lie on beds of the finger coral, *Porites porites*. As indi-



Pleurobranchus (Oscanius) amarillius Mattox



Pleurobranchus (Oscanus) amarillius Mattox. Explanation on page 113.